

FAX

RECEIVED
CENTRAL FAX CENTER

APR 28 2006

ATTN. Niles R. Shah

Fax Number 1 571 273 8300

Phone Number 571 272 3771

FROM Volel Emile, Esq.

Fax Number 512 306 0240

Phone Number 512 306 7969

SUBJECT Appeal Brief (10/082,746)

Number of Pages 23

Date 4/28/2007

MESSAGE

This fax transmission contains:

1. one copy of a Fax Transmittal Form;
2. two copies of a Fee Transmittal Letter, including fee; and
3. one copy of the Appeal Brief.

Volel


APR 28 2006

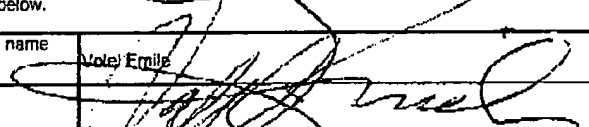
PTO/SB/21 (02-04)

Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| | | |
|---|------------------------|------------------------|
| TRANSMITTAL FORM (to be used for all correspondence after initial filing) | Application Number | 10/082,746 |
| | Filing Date | 02/21/2002 |
| | First Named Inventor | Jack Allen Alford, Jr. |
| | Art Unit | 2106 |
| | Examiner Name | Nilesh R. Shah |
| Total Number of Pages in This Submission | Attorney Docket Number | AUS920010887US1 |

| ENCLOSURES (Check all that apply) | | |
|---|--|---|
| <input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) | <input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below): |
| Remarks Appeal Brief | | |
| SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT | | |
| Firm or Individual name | Volei Emile | |
| Signature |  | |
| Date | 04/28/2006 | |

| CERTIFICATE OF TRANSMISSION/MAILING | | |
|---|---|-----------------|
| I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below. | | |
| Typed or printed name | Volei Emile | |
| Signature |  | Date 04/28/2006 |

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

APR 28 2006

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of: :
Jack Allen Alford, Jr. :
Serial No: 10/082,746 : Before the Examiner:
 : Niles R. Shah
 :
Filed: 02/21/2002 : Group Art Unit: 2195
 :
Title: APPARATUS AND METHOD : Confirmation No.: 5334
OF DYNAMICALLY :
REPARTITIONING A COMPUTER :
SYSTEM IN RESPONSE TO :
PARTITION WORKLOADS :

TRANSMITTAL OF APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192(a)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attached is Appellant's Brief from a decision of the Examiner dated
12/29/2005, finally rejecting Claims 1 - 52.

The item(s) marked below are appropriate:

1. _____ A petition and fee for extension of term for reply to the final rejection is attached.
2. X Appeal fee
 X other than a small entity. Fee: \$500.00
3. X Payment
 X Please charge Deposit Account **09-0447** the sum of \$500.00. A duplicate of this notice is attached.

05/01/2006 TL0111 00000029 090447 10082746
01 FC:1402 500.00 DA

AUS920010887US1

Page 1 of 2

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

The Commissioner is hereby authorized to charge any additional fee,
which may be required or credit any overpayment to Deposit Account No. 09-
0447.

Respectfully Submitted

By: 

Volel Emile
Attorney for Applicants
Registration No. 39,969
(512) 306-7969

AUS920010887US1

Page 2 of 2

APR 28 2006

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|-----------------------------|--------------------------|
| In re: Application of: | : |
| Jack Allen Alford, Jr. | : |
| Serial No: 10/082,746 | : Before the Examiner: |
| | : Nileshe R. Shah |
| Filed: 02/21/2002 | : Group Art Unit: 2195 |
| Title: APPARATUS AND METHOD | : Confirmation No.: 5334 |
| OF DYNAMICALLY | : |
| REPARTITIONING A COMPUTER | : |
| SYSTEM IN RESPONSE TO | : |
| PARTITION WORKLOADS | : |

APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal to a final rejection dated December 29, 2005 of claims 1 - 52 of Application Serial Number 10/082,746 filed on February 21, 2002. This brief is submitted pursuant to a Notice of Appeal filed on March 08, 2006 in accordance with 37 C.F.R. 1.192.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

BRIEF FOR APPLICANTS – APPELLANTS

(I)

Real Party in Interest

The real party in interest is International Business Machines Corporation (IBM), the assignee.

(II)

Related Appeals and Interferences

There are no other appeals or interferences known to appellants, appellants' representative or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(III)

Status of Claims

All claims in the Application (i.e., Claims 1 – 52) have been finally rejected.

(IV)

Status of Amendment

No amendment was filed subsequent to the Final Rejection.

(V)

Summary of Claimed Subject Matter

The present invention provides a method of dynamically repartition a computer system in response to partition workload. According to one embodiment of the invention, when it is determined that a workload on a resource in a partition exceeds a maximum threshold, a similar resource is automatically re-allocated to the partition (see page 14, line 7 to page 15, line 2). Further, minimum and maximum percentage usages of the resource by

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

processes running in the partition are also automatically varied (see page 14, line 7 to page 15, line 11 see also page 15, line 27 to page 16, line 26 and Fig. 7).

According to another embodiment of the invention, a workload profile is created for each partition. The workload generally has an amount of workload and a time schedule for each workload. Before a workload is to occur and if the workload on the resources originally assigned to the partition is to exceed a maximum threshold, additional resources are automatically re-allocated to the partition (see page 15, lines 12 – 26).

(VI)

Grounds of Rejection to be Reviewed on Appeal

Whether Claims 1 - 52 were properly rejected under 35 USC 102(e) as being anticipated by Fong et al.

(VII)

Arguments

In considering a Section 102 rejection, all the elements of the claimed invention must be disclosed in a single item of prior art in the form literally defined in the claim. *Jamesbury Corp. v. Litton Indus. Products*, 756 F.2d 1556, 225 USPQ 253 (Fed. Cir. 1985); *Atlas Powder Co. v. Dupont*, 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); *American Hospital Supply v. Travenol Labs.*, 745 F.2d 1, 223 USPQ 577 (Fed. Cir. 1984).

Fong et al., teach a flexible dynamic partitioning (FDP) of resources in a cluster computing environment. According to Fong et al., FDP allocates/reallocates resources to partitions. Particularly, partitioning of resources can be initiated by both application and system triggers. Once dynamic partitioning is triggered, FDP allows a partition to invoke a set of resource allocation/reallocation functions associated with its partition. The reallocation function performs a set of resource matchings and determines the necessary resource movement among partitions.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

However, Fong et al. do not teach the step of ***automatically varying minimum and maximum percentage usages of a resource by processes running in a partition*** after a resource has been reallocated to the partition as stated in Claim 1 for example.

Further, in another set of claims (see Claim 6 for an example), a workload profile that includes a workload time schedule as well as a workload for each partition is used to determine when resources are to be reallocated to the partitions. Thus, unlike the schedule scheme taught by Fong et al. and which the Examiner seemed to have relied on to reject the claim, the workload of the partitions (from the workload profile) controls when the reallocation is to occur.

By contrast, the workload scheme taught by Fong et al. is directed toward a hierarchical scheduling framework. That is, the partitioned system, as taught by Fong et al., is divided into a hierarchical domain whereby the top-level domain contains two or more partitions, the next to the top-level domain being sub-partitions and the next to the next top-level domain being sub-sub-partitions etc. According to the scheduling scheme, resources are re-allocated to the top-level domain first and then to the next to the top-level domain etc. (see col. 5, lines 6 – 21). Clearly, this scheduling scheme is quite different from the workload time scheduling used in the present invention.

Since the applied reference does not anticipate neither independent Claims 1 nor 6 and since all the claims in the Application contains the limitations in Claims 1 and 6 in some form or fashion. Applicants submit the claims are allowable. Hence, Applicants once more respectfully request reconsideration, allowance and passage to issue of the claims in the application.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

Respectfully Submitted

By: 

Volel Emile
Attorney for Applicants
Registration No. 39,969
(512) 306-7969

AUS920010887US1

Page 5 of 17

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

(VIII)

Claims Appendix

1. (Previously Amended) A computer implemented method of dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources and a minimum and a maximum percentage usage for each of the resources by each process being executed in each partition, the computer implemented method comprising the steps of:

determining whether a workload on a resource in a partition exceeds a maximum threshold; and

automatically allocating a similar resource to the partition if it is determined that the workload exceeds the maximum threshold, said automatically allocating step includes the step of automatically varying the minimum and the maximum percentage usage of the resource by each process executing in the partition.

2. (Previously amended) The computer implemented method of Claim 1 wherein the similar resource is a resource that has not been allocated to any partition.
3. (Previously amended) The computer implemented method of Claim 2 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.
4. (Previously amended) The computer implemented method of Claim 1 wherein the similar resource is one of a plurality of similar resources that

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

are allocated to another partition having a workload within a particular threshold.

5. (Previously amended) The computer implemented method of Claim 4 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.

6. (Previously amended) A computer implemented method of dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer implemented method comprising the steps of:

creating a workload profile for each partition, the profile having a workload and a workload time schedule; and

automatically allocating additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

7. (Previously amended) The computer implemented method of Claim 6 wherein one of the resources is a processor.
8. (Previously amended) The computer implemented method of Claim 7 wherein another one of the resources is memory space.
9. (Previously amended) The computer implemented method of Claim 8 wherein a further of the resources is an I/O slot.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

10. (Previously amended) The computer implemented method of Claim 9 wherein the additional resources are not assigned to any partition.
11. (Previously amended) The computer implemented method of Claim 10 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.
12. (Previously amended) The computer implemented method of Claim 9 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.
13. (Previously amended) The computer implemented method of Claim 12 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.
14. (Previously amended) A computer program product on a computer readable medium for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources and a minimum and a maximum percentage usage for each of the resources by each process being executed in each partition, the computer program product comprising:

code means for determining whether a workload on a resource in a partition exceeds a maximum threshold; and

code means for automatically allocating a similar resource to the partition if it is determined that the workload exceeds the maximum threshold, said

AUS920010887US1

Appl. No. 10/082,746
 Appeal Brief dated 04/28/2006
 Reply to Office Action of 12/29/2005

automatically allocating code means includes code means for automatically varying the minimum and the maximum percentage usage of the resource by each process executing in the partition.

15. (Original) The computer program product of Claim 14 wherein the similar resource is a resource that has not been allocated to any partition.
16. (Original) The computer program product of Claim 15 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.
17. (Original) The computer program product of Claim 14 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.
18. (Original) The computer program product of Claim 17 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.
19. (Original) A computer program product on a computer readable medium for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer program product comprising:

code means for creating a workload profile for each partition, the profile having a workload and a workload time schedule; and

code means for automatically allocating additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

20. (Original) The computer program product of Claim 19 wherein one of the resources is a processor.
 21. (Original) The computer program product of Claim 20 wherein another one of the resources is memory space.
 22. (Original) The computer program product of Claim 21 wherein a further of the resources is an I/O slot.
 23. (Original) The computer program product of Claim 22 wherein the additional resources are not assigned to any partition.
 24. (Original) The computer program product of Claim 23 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.
 25. (Original) The computer program product of Claim 22 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.
 26. (Original) The computer program product of Claim 25 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.
 27. (Previously amended) An apparatus for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the partitioned computer system having a plurality of resources and a
- AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

minimum and a maximum percentage usage for each of the resources by each process being executed in each partition, the apparatus comprising:

means for determining whether a workload on a resource in a partition exceeds a maximum threshold; and

means for automatically allocating a similar resource to the partition if it is determined that the workload exceeds the maximum threshold, said automatically allocating means includes means for automatically varying the minimum and the maximum percentage usage of the resource by each process executing in the partition.

28. (Original) The apparatus of Claim 27 wherein the similar resource is a resource that has not been allocated to any partition.
29. (Original) The apparatus of Claim 28 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.
30. (Original) The apparatus of Claim 27 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.
31. (Original) The apparatus of Claim 30 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.
32. (Original) An apparatus for dynamically re-partitioning a partitioned computer system in response to workloads, each partition of the

AUS920010887US1

Appl. No. 10/082,746

Appeal Brief dated 04/28/2006

Reply to Office Action of 12/29/2005

partitioned computer system having a plurality of resources, the apparatus comprising:

means for creating a workload profile for each partition, the profile having a workload and a workload time schedule; and

means for automatically allocating additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.

33. (Original) The apparatus of Claim 32 wherein one of the resources is a processor.
34. (Original) The apparatus of Claim 33 wherein another one of the resources is memory space.
35. (Original) The apparatus of Claim 34 wherein a further of the resources is an I/O slot.
36. (Original) The apparatus of Claim 35 wherein the additional resources are not assigned to any partition.
37. (Original) The apparatus of Claim 36 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.
38. (Original) The apparatus of Claim 35 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

39. (Original) The apparatus of Claim 38 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.

40. (Previously amended) A computer system that is partitioned and having code data for dynamically re-partitioning itself in response to workloads, each partition of the partitioned computer system having a plurality of resources and a minimum and a maximum percentage usage for each of the resources by each process being executed in each partition, the computer system comprising:

at least one storage device for storing the code data; and

at least one processor for processing the code data to determine whether a workload on a resource in a partition exceeds a maximum threshold, to automatically allocate a similar resource to the partition if it is determined that the workload exceeds the maximum and to automatically vary the minimum and the maximum percentage usage of the resource by each process executing in the partition.

41. (Original) The computer system of Claim 40 wherein the similar resource is a resource that has not been allocated to any partition.

42. (Original) The computer system of Claim 41 wherein the similar resource is de-allocated from the partition after the workload has decreased to a minimum threshold.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

43. (Original) The computer system of Claim 40 wherein the similar resource is one of a plurality of similar resources that are allocated to another partition having a workload within a particular threshold.
44. (Original) The computer system of Claim 43 wherein the similar resource is de-allocated from the partition and re-assigned to the other partition after the workload has decreased to a minimum threshold.
45. (Original) A computer system that is partitioned into a plurality of partitions, the computer system having code data for dynamically re-partitioning itself in response to workloads, each partition of the partitioned computer system having a plurality of resources, the computer system comprising:
- at least one storage device for storing the code data; and
- at least one processor for processing the code data to create a workload profile for each partition, the profile having a workload and a workload time schedule and to automatically allocate additional resources to a partition before the workload is to occur if the workload on the resources originally assigned to the partition is to exceed a maximum threshold.
46. (Original) The computer system of Claim 45 wherein one of the resources is a processor.
47. (Original) The computer system of Claim 46 wherein another one of the resources is memory space.
48. (Original) The computer system of Claim 47 wherein a further of the resources is an I/O slot.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

49. (Original) The computer system of Claim 48 wherein the additional resources are not assigned to any partition.
50. (Original) The computer system of Claim 49 wherein the additional resources are de-allocated from the partition after the workload has decreased to a minimum threshold.
51. (Original) The computer system of Claim 48 wherein the additional resources are part a plurality of similar resources that are allocated to one or more other partitions having a scheduled workload that does not exceed a particular threshold.
52. (Original) The computer system of Claim 51 wherein the additional resources are de-allocated from the partition and re-assigned to the one or more partitions after the workload has decreased to a minimum threshold.

AUS920010887US1

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

(IX)

Evidence Appendix

No evidence was submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 and 1.132 nor was there any evidence entered by the Examiner relied upon by Appellants in this appeal.

AUS920010887US1

Page 16 of 17

Appl. No. 10/082,746
Appeal Brief dated 04/28/2006
Reply to Office Action of 12/29/2005

(X)

Related Proceedings Appendix

There are no decisions rendered by a court or the Board that would have a bearing on the Board's decision in the pending appeal.

AUS920010887US1

Page 17 of 17